APPLICANTS: Moutsatos I. et al.

September 4, 1998

SERIAL NO.:

09/148,234

FILED: PAGE:

2 of 4

In the Claims:

1-23. Cancelled.

24. (New) A method of inducing functional bone formation at a site of bone infirmity in a human, comprising the steps of:

- (a) transforming a cultured mesenchymal stem cell with a DNA encoding bone morphogenesis protein 2 (BMP-2);
- culturing the cultured mesenchymal stem cell transformed in step (a), (b) under conditions enabling expression of said DNA encoding bone morphogenesis protein 2; and
- implanting said cultured mesenchymal stem cell at a site of bone infirmity (c) whereby autocrine and paracrine effects of expressed bone morphogenesis protein 2 at said site of bone infirmity result in functional bone formation, thereby inducing functional bone formation at a site of bone infirmity.
- 25. (New) The method of claim 23, wherein said mesenchymal stem cell is a primary cell.
- 26. (New) The method of claim 23, wherein said mesenchymal stem cell is a cultured cell line.
- 27. (New) The method of claim 23, wherein said mesenchymal stem cell expresses an endogenous bone morphogenesis protein receptor.
- 28. (New) The method of claim 24, wherein said mesenchymal stem cell expresses parathyroid hormone and a parathyroid hormone receptor protein.